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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,507	08/26/2003	Susumu Saito	H05-3764/HO	2706

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EXAMINER
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CHANG, AUDREY Y

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 02/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/647,507

Applicant(s)

SAITO ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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## DETAILED ACTION

### *Remark*

- This Office Action is in response to applicant's amendment filed on July 25, 2005, which has been entered into the file.
- By this amendment, the applicant has amended claims 1-7, 10-11 and 14, and has newly added claims 15 and 16.

### *Claim Objections*

**1. Claims 1-16 are objected to because of the following informalities:**

(1). The **amended** phrase "the first sub-array light sources may be functionally substituted for the second sub-array light sources" recited in amended claims 1 and 6 and in newly submitted claims 15 and 16 is confusing and indefinite since it is not clear the phrase after "may be" is or is not part of the claims. The phrase "may be" is suggestive but not necessary positively part of the claims.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

**2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**3. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Inoue et al (PN. 5,870,132) in view of the patent issued to Laberge (PN. 6,252,622).**

Inoue et al teaches a *multiple beam-scanning device* (53, Figure 1) for scanning a plurality of light beams, (please see the plurality of light beams emitted by the plurality of light emitting portions

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21(a)), across an image bearing member (5) serves as the *light receiving member*. Inoue et al teaches the multiple beam scanning device comprises a semiconductor laser array (21) that includes a plurality of light emitted portions, that serves as the *sub-array of light source*, wherein each of the light emitting portions (21a) is individually and discretely controlled by a *control unit* (60), which implicitly individually modulates the light intensity of light beams from each of the light emitting portions, (please see column 11 line 65 to column 12 line 11). Any one of the plurality of light beams generated from the semiconductor laser array (21) is then introduced to an *optical unit* including a *collimator lens* (2), a *rotation polygon mirror* (3) and an *image forming lens* (4) to be *converged* and *simultaneously scanned* in parallel with equidistant spacing across the light receiving member, (please see Figure 1).

This reference has met all the limitations of the claims with the exception that it does not teach that a second sub-array of the light sources is provided that is not in use when the first sub-array of light source is in use and the second sub-array of light source is provided to replace the first sub-array. **With regard to claims 2, 7, 10 and 14**, this reference also does not teach to include a detection unit that detects the defectiveness of one of the sub-array of light source and a switching unit configured to switch the other sub-array of light source to be used when one of the sub-array is detected to be defective. **Laberge** in the same field of endeavor teaches a fault tolerant laser diode array wherein a secondary sub-array of laser diodes is provided so that a pair of diodes is used to generate light beam for each data track, but with only one of the diodes (i.e. the primary one) being activated as presently-used, and in case the primary diode fails the secondary diode is activated to *replace* the primary one, (please see the Abstract, Figures 2 and 4). Laberge further teaches a *selection subsystem* is provided to detect the failure in any one of the primary diodes and to selectively activate a functional secondary diode within the group of the diodes that failure is detected to replace the failed primary diodes, (please see column 2, lines 25-47). It would then have been obvious to one skilled in the art to apply the teachings of **Laberge** to provide a secondary sub-array laser sources with the selection subsystem in the multiple beams scanning device of **Inoue et al** for

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the benefit of providing fault tolerant laser diode array for the scanning device so that the scanning device is remained operative even in the event of the failure of the presently-used or primary sub-array light sources. **With regard to claim 6**, a *drive unit* is implicitly included to drive and activate the selected sub-array light source to be used in the scanning device.

**With regard to claims 3 and 11**, **Laberge** further teaches that the detection unit in the selection subsystem includes a *light detector* (8, Figure 4) for detecting the light intensity level of each light beams emitted from the presently-used or primary sub-array light source. The presently-used or primary sub-array light source is determined to be defective if the light intensity is detected to be outside a predetermined range, (please see column 5, lines 11-33).

**With regard to claims 4, 8 and 12**, **Inoue et al** teaches that the semiconductor laser array comprises a common base. Although **Laberge** does not teach explicitly that the two sub-array laser diodes (1 and 3, Figure 2) are formed at a common base, such modification would have been obvious to one skilled in the art for the benefit of keeping the diodes sub-array properly aligned. The number of laser diodes in each sub-array as taught by **Laberge** is the same.

**With regard to claim 5**, both **Inoue et al** and **Laberge** teaches that the semiconductor laser diode sub-array are arranged in two-dimensional fashion which means that the diodes are arranged in a first and second direction that are perpendicular to each other.

**With regard to claims 9 and 13**, **Inoue et al.** teaches the multiple beams scanning device comprises an image output device comprising a light-receiving member (5).

With regard to the features concerning the substitution of one sub-array of light sources with the other, as stated in claims 15 and 16, they are rejected by the teachings of **Laberge** for the reasons stated in claims 1 and 6 above.

*Response to Arguments*

4. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection. The amendments to the claims have been fully addressed and are rejected for the reasons stated in paragraphs above.

5. Applicant's arguments concerning the cited Laberge reference for not providing the teachings of multiple beams scanning device are wrong since the teachings of multiple beam scanning device has been explicitly taught by the cited Inoue et al reference. The ideas of using two sets or two sub-arrays of laser diodes so that one can replace the other when one fails in a multiple beams scanning device is explicitly taught by the teachings of Inoue et al in combination with the teachings of Laberge.

*Conclusion*

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

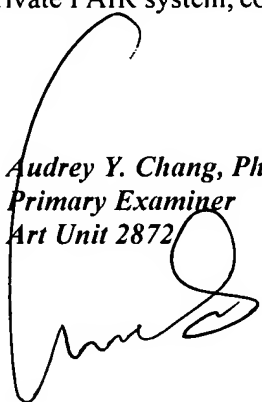
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Audrey Y. Chang, Ph.D.*  
*Primary Examiner*  
*Art Unit 2872*



A. Chang, Ph.D.